

ABSTRACT OF THE DISCLOSURE

An ultrasonic transmitting and receiving apparatus capable of scanning an object to be inspected in high density and in a short time by using nondiffracting beams. The
5 ultrasonic transmitting and receiving apparatus includes:
an ultrasonic transducer array including ultrasonic
transducers arranged in a matrix form; a waveform information
setting unit for setting waveform information to be used for
transmitting a plurality of ultrasonic beams, each of which
10 is synthesized by ultrasonic signals having amplitude and
phase characteristics represented by Bessel function, within
a predetermined period; and a drive signal generating unit
for respectively generating drive signals for driving the
ultrasonic transducers included in the ultrasonic transducer
15 array on the basis of the waveform information set by the
waveform information setting unit.